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5. Mexican Desert Isles Hold Sulphur Deposits

(SEE BULLETIN NO. 4)

THE WASHINGTON STAR

"THE FIELD IS AT THE POST"; A STABLE OF TURTLES AWAITS THE SIGNAL TO START

Forepaws extended, these pleasant pets are on their mark for a race—no hares entered. The owners—members of the Washington, D. C., Boys' Club—rest light fingers on the shellbacks. They gently blow in the right direction. This is better than pushing, which sometimes makes the turtles balky.

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Bulletin No. 1, November 10, 1952

Korea's Chorwon Hills Find Fire No Novelty

COMMUNIST hordes smashing at key hills held by United Nations armies in central Korea bring the fire of war to a tumbled countryside where, in time of peace, fire has long been an important, if wasteful, aid to agriculture.

Instead of clearing his land by cutting down the trees and grubbing out the stumps, the farmer in the Korean hill country all too often merely set fire to the woods. Then he planted his crops of millet, barley, oats, hemp, and potatoes in the smoldering fields which he made by this wasteful method.

Wildlife Had Fled Long Before War

When the soil wore out—which it did after a few years of careless treatment—the farmer abandoned the plot to weeds and erosion and burned out another section.

In consequence of this unscientific farming, battlefields where communist and United Nations armies fight often are scrubby, barren hillsides with neither wildlife nor vegetation. The great Korean tiger, the leopard, and the savage wild boar that prowled the original forests of the region have long since fled the waste and desolation.

By way of contrast, lush rice paddies cover the floors of the valleys between the Chorwon hills, including the "White Horse Mountain" and "Arrowhead Ridge" mentioned in news dispatches. In this northern region of short summers, a fast-maturing variety of rice is planted. Only one crop a year is harvested as against two in the warmer south.

No peaks in the Chorwon battle zone rise higher than 2,000 feet. However, their extreme steepness and jagged, irregular crags give them the appearance of being twice as high as they actually are to the soldiers fighting their way up under enemy fire.

The elevations are important to an army striking down the long and comparatively easy Chorwon Depression from the east-coast port of Wonsan (map, next page) because they command the floor of the valley.

Mountain Peaks in North Top 8,000 Feet

Twice during the conflict the communist forces have captured the hills and advanced to Seoul, capital of South Korea, along the route over which in bygone centuries other armies of Chinese and Mongolian invaders have marched.

Korea has higher mountains in the communist-held north, several of them rising over 8,000 feet. In the Diamond Range (Taebaek Sanmaek), which stretches along the east coast, peaks top 5,000 feet.

The Diamond Mountains are famous for their rugged, spectacular scenery, and for the Buddhist monasteries and temples (illustration, inside cover) built in their lofty fastnesses.

Buddhism was introduced into Korea in the early years of the Christian era, and flourished for more than 1,000 years.

ENTERED AS SECOND CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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C. K. EDMUNDS

ERECT AS THE SLENDER TEN-TIERED PAGODA BEHIND HIM, A BUDDHIST PRIEST STANDS ON THE STEPS OF A TEMPLE IN KOREA'S DIAMOND MOUNTAINS

Carved panels and cornices, scalloped roof, and slim pagoda are typical features of a Buddhist temple in the Diamond Mountains, east of the Chorwon battle zone (Bulletin No. 1). Before the decline of Buddhism these mountains were the setting for more than 100 temples and monasteries. They were built on steep ledges, in niches scooped out of sheer rock walls, and tucked away in deep ravines. Time and the rise of Confucianism brought destruction, but many still remain to attract the more venturesome peacetime traveler. Of Korea's more than 25,000,000 people, nearly 700,000 now are Christians.

Bulletin No. 2, November 10, 1952

Alaska Highway Traffic Tops Its Own Record

STILL another wilderness is falling before the modern automobile. The Canadian government reported in August, 1952, that traffic over the 1,520-mile Alaska Highway was then at least double that for 1951. The tourist is beginning to crowd the wolf and the ptarmigan for room.

The Alaska Highway is a lasting monument to the genius of the United States Army Engineers who built it in record time. Ten thousand soldiers with the aid of 6,000 civilians built the road in a little more than six months in 1942.

Traverses Peace River Plains

The "Alcan," as it was called in its early days, winds through some of the finest fish and game country of North America. It cuts across the northeast corner of British Columbia, through southwest Yukon, and over the border into Alaska, ending at Fairbanks (illustration, next page), in the central area of that territory.

It traverses the farming plains of the Peace River, skirts blue lakes and majestic mountain ranges, cuts through picturesque Indian villages, and crosses swift streams of pure and sparkling water.

Part gravel, part macadam, the road is 26 feet wide. The Canadian terminus is at Dawson Creek, British Columbia, near the Alberta border; the American at Fairbanks.

The best way to reach Dawson Creek by automobile is from Prince George, British Columbia, 157 miles southwest, over a highway opened this year. The old trail was an unimproved road from Edmonton, Alberta.

The United States maintained the entire highway from its formal opening on November 15, 1942, until 1946. Then Canada took over the administration of its 1,220-mile section. Until 1948, the Canadian government issued few travel permits, fearing that travelers might come to grief miles from help.

No Travel Permit Now Required

Now wooden fills over quaking muskeg have been replaced with steel and concrete. New bridges are constantly being built. Filling stations and hostelries dot the route. Highway patrols prowl constantly.

A travel permit is no longer required, and an automobile trip to Alaska is a safe, simple possibility for anyone with a good car and a moderate vacation budget.

Before the gold rush of 1898, Alaska was populated largely by Indians and Aleuts. The chief visitors from the outside were fur trappers, hunters, and fishermen. When Secretary of State William H. Seward bought the territory from Russia in 1867 for $7,200,000, many Americans thought the price too high and called the new possession "Seward's Folly" and "590,000 square miles of icebergs and polar bears."

Since those days, the value of the gold, silver, tin, copper, platinum, timber, furs, and salmon taken out of Alaska has amounted to many times the price paid for the territory. Vast riches still remain to be developed in a country lying one-third within the Arctic Circle, yet

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Toward the end of the 14th century there was a revolt against the power of Buddhism. Confucianism became the official religion. Many of the Buddhist monasteries were burned, many fell into decay. Before World War II there were estimated to be 40 or more still standing in almost inaccessible areas. Then, after 1945, the South Korean government ordered every district to build a Buddhist temple.

Because the old monasteries of the Diamond Mountains are far from the beaten tourist track and very difficult to reach, these elaborately decorated structures with their carved images of Buddha and their gracefully up-curved roofs have been seen by relatively few Westerners.

NOTE: Korea is shown on the National Geographic Society's map of Japan and Korea. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

See also, "Roaming Korea South of the Iron Curtain," in *The National Geographic Magazine* for June, 1947; "Jap Rule in the Hermit Kingdom," October, 1945; and "Chosen —Land of Morning Calm," October, 1933. *(Back issues may be obtained from the Society's headquarters at 60¢ a copy, 1946 to date; $1.00, 1930–1945; $2.00, 1913–1929. Earlier issues at varied prices.)*

DRAWN BY THEODORA P. THOMPSON AND IRVIN E. ALLEMAN

THE TRAGIC 38TH-PARALLEL BOUNDARY SPLIT KOREA AND BROUGHT ON WAR. TODAY'S BATTLE-LINE EXTENDS NORTHEAST FROM THE MOUTH OF THE HAN, THROUGH THE CHORWON HILLS, TO THE SEA OF JAPAN

Bulletin No. 3, November 10, 1952

Tiber River Adds to Italy's Electric Power

ALONG Rome's historic Tiber (Tevere) River a literal as well as symbolic temple to power has joined the ghost-haunted relics of the "eternal city."

Opened in May, 1951, by the president of the republic of Italy, this modern temple is a hydroelectric plant which has harnessed Tiber waters at Castel Giubileo, about 10 miles north of Rome.

This is the first time in its long history that the Tiber's waters have been put to such use. The 70,000,000 kilowatt hours a year which the new plant adds to Italy's power resources is only part of its contribution to the nation's welfare. Waters of the Tiber brought under control by the plant can irrigate 100,000 acres of farmland.

Useful to Rome and Vicinity

Compared with the 20-odd billion kilowatt hours of electricity annually produced in Italy as a whole, the Tiber plant's capacity is relatively small. The station, however, is part of a large-scale program for the region, and will meet a pressing need in Rome and its vicinity.

It also is important in the development of power now playing a vital part in building up and expanding Italy's industries and economic strength.

Italy's lack of coal mines and oil wells has long been a handicap. Most of the oil and coal which the country needs has had to be imported at high cost and great inconvenience. For this reason, the nation has come to depend more and more on electric power. This has been generated chiefly from streams and waterfalls of the Alps, and of the Apennines—the mountain spine which runs down the length of the Italian peninsula.

It is estimated that 87 per cent of the electric power that operates the machines of Italy's factories, and its heating, lighting, and household equipment, comes from these water sources.

The other 13 per cent is derived from thermal electricity—that is, electricity produced from heat. Nearly half of the thermal electricity is man-made in plants that burn coal, oil, and gas. At present, most of it is made from coal. The rest, known as geothermic power, is obtained through the tapping of nature's own heating system which is found in the various volcanic areas of Italy.

ECA Funds Help Power Program

The main source of volcanic power so far developed is an awesome area of steam vents and boiling pools near the town of Larderello in west-central Italy. There a vast supply of underground energy was first put to work in a practical way before World War I.

With the help of funds from Uncle Sam's ECA (Economic Cooperation Administration) to further Italy's nation-wide power program, the modern plant and drilling machinery at Larderello are turning out a billion kilowatt hours annually, with possibilities for a great deal more.

Italy's electric-power output has grown in a spectacular way. On the eve of the First World War, a total of two billion kilowatt hours was

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possessed of such a temperate climate in its southern portions that cities in the "Deep South" of the United States have colder days than Sitka has ever experienced.

Alaskans believe that the highway, built as a military necessity during World War II, may become the pathway to their door for the settlers they are so eager to welcome.

NOTE: The Alaska Highway may be located on the Society's map of Canada, Alaska & Greenland.

For additional information, see "Alaska's Russian Frontier: Little Diomede," in *The National Geographic Magazine* for April, 1951; "Busy Fairbanks Sets Alaska's Pace" and "Nomads of the Far North," October, 1949; "Alaskan Highway an Engineering Epic," February, 1943; "Strategic Alaska Looks Ahead," September, 1942; and "Our Air Frontier in Alaska," October, 1940.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, February 11, 1952, "Sole U. S. Musk Ox Herd Ranges Nunivak Island"; "Fishwheel, Gold-Rush Town, New Alaska Name," November 14, 1949; and "Whitehorse to Be Stage for Arctic Maneuvers," October 10, 1949.

PACIFIC AERIAL SURVEYS, INC.

AMERICA'S FARTHEST-NORTH UNIVERSITY STANDS IN A FOREST CLEARING ON THE TANANA RIVER

The University of Alaska celebrated its 30th birthday this year, with an enrollment of more than 500 students, exclusive of those taking extension courses. During the long winter months many residents of near-by Fairbanks enroll for courses of special local interest such as mining and geology.

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Bulletin No. 4, November 10, 1952

Turtles Are Nature's Old-Timers

WHEN is a turtle not a turtle? When the hard-shelled crawler lives on land, it is called a "tortoise"; when it lives in fresh or brackish water, it is usually sold in the market as "terrapin"; its scientific name is Chelonia because it belongs to the Chelonian order of reptiles.

The turtle has roamed land and sea in almost unchanged form for 200 million years. It saw dinosaurs come and go, and witnessed the development of man. It is the longest-living backboned creature on earth.

Two giant sea turtles, one captured in Australia's Tasman Sea and the other taken in Korean waters since World War II, were at least 100 years old when the Battle of Hastings was fought in 1066—according to news dispatches reporting their capture. Reports blithely ventured in each case that 1,000 years would be a fair estimate of the captive's age. If so, they were hatched before Leif Ericson was born.

Size Does Not Indicate Age

However, men who know turtles best do not believe that any of the stolid reptiles now alive antedate, say the Spanish Armada (1588), or even the voyage of the Mayflower (1620).

Large size is no proof of great age. Like human beings, the various turtle species do their growing in a comparatively few years of their early life. Our common box turtles (illustration, cover) do most of their growing in their first half dozen years, seldom after the age of 15, though some of them live to be 100.

Shell rings may show with tree-ring accuracy the age of the young of many species, but are less reliable as the turtle ages. After maturity, growth slows so that rings cannot be distinguished. Shell wear also erases evidence of age, and some species cast off old shell.

A giant tortoise roams the grounds of Plantation House, residence of the British governor of lonely St. Helena in the South Atlantic. Believed to be 175 years old, this privileged pet is called the only living link with Napoleon, who lived there in exile from 1815 to 1821. However, there is no real proof that it ever saw the Little Corporal.

Island Groups Named for Turtles

The greatest recorded age is 152 years for a turtle caught on Mauritius in the Indian Ocean in 1766. It died accidentally in 1918.

On the Equator west of Ecuador lie the Galapagos Islands, whose name is Spanish for the giant land tortoises which live there. Men's raids have left very few of them. The ages of some have been estimated to be nearly as great as their weight—often more than 300 pounds. Some 70 miles west of Key West, Florida, the seven Dry Tortugas likewise bear a Spanish name meaning turtle.

The salt marshes of the Chesapeake Bay country abound in diamondback terrapin. Popularity of these Chelonians has waxed and waned with fashions in eating. In Colonial days, Maryland slaves often complained of too much terrapin for their meals. In contrast, during the gay and glittering '90's, people with eating enthusiasm—and the price—

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produced. By 1926, the figure had reached the 7,500,000,000 mark. In 1941, 20,600,000,000 kilowatt hours were produced.

Although World War II brought damage and destruction, by 1947 Italian power was back at the 1941 level. The fifth postwar year marked an all-time record of 24,900,000,000 kilowatt hours.

Yet in spite of advances, Italy still needs more power than it produces. Bad weather conditions sometimes sharply lower hydroelectric production. This was proved by the shortages and resultant rationing of electricity following the severe drought of 1948-49.

However, thermal energy is being expanded rapidly. Numerous new hydroelectric plants have been built or are under construction. In addition to the plant at Castel Giubileo, another station is under way at Nazzano on the Tiber, with others to follow in a vast program of irrigation as well as power production.

NOTE: The Tiber River is shown on the Society's map of Europe and the Near East. For further information, see "Ancient Rome Brought to Life," in *The National Geographic Magazine* for November, 1946; "Italy's Monuments Tell Rome's Magnificence," March, 1940; "Imperial Rome Reborn," March, 1937; and in the GEOGRAPHIC SCHOOL BULLETINS, January 14, 1952, "Wolves at Rome's Door Recall Old Legend"; and "Rome's Colosseum Stages a 'Premiere'," October 29, 1951.

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TEN MILES BELOW CASTEL GIUBILEO, WHERE IT GENERATES MODERN ELECTRIC POWER, THE TIBER FLOWS PLACIDLY UNDER THE OLDEST BRIDGE IN ROME—THE 2014-YEAR-OLD PONTE FABRICIO

Bulletin No. 5, November 10, 1952

Mexican Desert Isles Hold Sulphur Deposits

A LONELY cluster of uninhabited islands off the west coast of Mexico, nearly forgotten in the wide Pacific, will be populated shortly by men and machines.

The Islas Revilla Gigedo, four tiny peaks rising abruptly from a blank expanse of sea about 370 miles west of the Pacific shores of Mexico, may become the source of a treasure of golden rock—natural sulphur. This useful mineral, almost pure, was spewed centuries ago from the volcanoes that built the islands.

Trees Grow to Giant Size

The Mexican government has granted a concession for large-scale mining and refining of sulphur on Socorro, the largest island of the archipelago. Whether or not the operation proves practicable, the Revilla Gigedos will lose their status as one of the world's few island groups unchanged by man.

Socorro is a single peak rising 3,707 feet above the sea. It is visible for nearly 70 miles in clear weather. Cactus (illustration, next page), vines, and a sagelike brush choke its deep ravines and crumpled lava hummocks. Strange trees grow 200 feet high on its windward side. Earthquakes shake it, and steam vents roar from its crest.

The other islands of the Revilla Gigedos are San Benedicto, 32 miles north toward the tip of Baja California; Clarion, 214 miles west of Socorro; and a jagged double pinnacle named Roca Partida midway between. They are far off steamer lanes. Pacific swells pound their steep black cliffs into intricate caves and arches lashed by cascades of foam.

San Benedicto, composed almost entirely of soft volcanic ashes, erupted in September, 1952. This explosion raised still higher the island's loftiest elevation, called "the Ash Heap."

The islands teem with sea birds, and the near-by waters abound with fish. So many whales go to the region of the Revilla Gigedos to raise their young that whalers call that part of the ocean a "cow pasture."

Discovered by a Captain of Cortés

Only on Socorro has fresh water been found. This is one of the reasons why the islands have never been successfully colonized. Because of their rare animal and plant life, however, many naturalists have visited the Revilla Gigedos. The history of their scientific exploration is studded with accounts of shipwrecks, swamped boats, hairbreadth escapes, and lost collections.

The group as a whole was named for the Spanish viceroy who governed Mexico from 1746 to 1755. First discovered in 1533 by one of Cortés's captains, the islands today are part of the Mexican State of Colima.

In 1608 a gold-seeking Spanish captain named Martin Yanez de Armida, lured by Indian legends of treasure buried far out to sea, found and named Socorro Island for his wife. He discovered no riches, however, and soon departed, leaving the island to the birds and the whales.

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gladly paid $100 and more a dozen for the succulent turtles. Watermen scoured the tidelands for them until the diamondbacks almost ceased to exist.

Today few people consider terrapin worth the trouble of preparing. With little demand, the price has dropped until a specimen of legal, or five-inch, size may bring only 50¢. Watermen do not bother to catch them. As a result, the diamondback population has greatly increased. Fishermen in Tangier Sound complain that turtles clog their nets and invade crab pots uninvited. In coastal lands from New England to Texas the little diamondback crawls steadily along his comeback trail.

Some effort is being made by tidewater states to put the diamondback again on the nation's menus as a dish for families of average income. No satisfactory way has yet been found to freeze or can terrapin, however, and popularization has been held back by a tendency of restaurants and clubs to keep the price of diamondback traditionally high.

If terrapin catches on, the United States Fish and Wildlife Service is ready to give watermen much data on how to raise them in captivity. It has bred them successfully on the Chesapeake and in North Carolina. The prospective diamondback farmer, however, should not look for quick riches—terrapin take eight years to reach market size.

NOTE: For further information, see "Nature's Tank, the Turtle," in *The National Geographic Magazine* for May, 1952; and "Capturing Giant Turtles in the Caribbean," August, 1943.

W. ROBERT MOORE

AT A BEAUFORT, NORTH CAROLINA, TURTLE HATCHERY, DIAMONDBACKS ENJOY A BEACH SUPPER

In 1869 an Australian named John Smith took a small group of colonists, with cattle, sheep, and goats, to Socorro. Smith died soon after and his companions abandoned the settlement. The cattle died, but the sheep and goats thrived. Today their descendants roam the island. Another attempt to colonize the islands was proposed in 1932, but it too fell through. Except for the sheep and goats, the original "balance of nature" still governs these outcroppings of lava and ash—and perhaps valuable sulphur—which guard Mexico's western approaches.

NOTE: The Islas Revilla Gigedos are shown on the Society's map of Countries of the Caribbean.

See also, "Sea Birds of Isla Raza," in *The National Geographic Magazine*, February, 1951; and "Baja California Wakes Up," August, 1942; and, in the GEOGRAPHIC SCHOOL BULLETINS, January 7, 1952, "Baja California Attains Mexican Statehood."

LAURENCE M. HUEY

SEA BIRDS OF MEXICO'S WEST COAST OFTEN NEST AMONG THE LEAFLESS, CORRUGATED BRANCHES OF THE GIANT CACTUS WHICH GROWS TO MANY TIMES THE HEIGHT OF A TALL MAN

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